PMS30

IS DENOSUMAB COST-EFFECTIVE COMPARED TO ORAL BISPHOSPHONATES FOR THE TREATMENT OF MALE OSTEOPOROSIS (MOP) IN SWEDEN?

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OBJECTIVES: Cost-effectiveness of denosumab versus oral bisphosphonates in MOP was evaluated from a third-party payer perspective in Sweden. **METHODS:** A lifetime cohort Markov model was developed to reflect osteoporotic health states. During each cycle, patients could have a fracture, remain healthy, remain in a post fracture state or die. Background fracture risks, mortality rates, persistence rates, utilities, medical and drug costs were derived using published sources. Bone mineral density (BMD) improvements have been shown to be similar between MOP and post-menopausal osteoporotic (PMO) populations, and a recent fracture trial showed zoledronate to have effects in men similar to those reported previously in women; therefore efficacy data from PMO women were used. Lifetime expected costs and quality-adjusted life-years (QALYs) were estimated for denosumab, generic alendronate, generic risedronate, and ibandronate. Patients in the model were 65-year-old men, with BMD T-score≤-1.90 and prevalent vertebral fracture of 22.7%. In the base-case, the model assumed patients could receive treatment effects up to 2 years after discontinuation (offset time). Costs and QALYs were discounted at 3% annually. Extensive sensitivity analyses were conducted. **RESULTS:** Total lifetime costs for alendronate, denosumab, risedronate, and ibandronate were €45,118, €45,396, €45,526, and €46,523, respectively. Total QALYs were 9.86, 9.91, 9.85, and 9.83, respectively. Denosumab had an incremental cost-effectiveness ratio (ICER) of €5,283 compared to alendronate and dominated risedronate and ibandronate. Results were most sensitive to changes in relative risk (RR) of hip fracture with denosumab, cost of denosumab and RR of vertebral fracture with denosumab. The probability of denosumab being cost-effective compared to oral bisphosphonates at a threshold of €66,000/QALY was 85.5%. In a sensitivity analysis of offset time of 5 years for oral bisphosphonates, denosumab had an ICER of €10,382 compared to alendronate. **CONCLUSIONS:** Denosumab is cost-effective compared to branded and generic oral bisphosphonates in the Swedish MOP population.

PMS31

EFFECTIVENESS OF SECOND LINE BIOLOGIC USE IN RHEUMATOID ARTHRITIS AFTER SWITCHING FROM FIRST-LINE BIOLOGICS

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OBJECTIVES: Rheumatoid arthritis (RA) guidelines say little regarding optimal treatment after first-line biologics. We applied a published claims-based algorithm to estimate treatment effectiveness (as a proxy for low disease activity or remission) and cost per responder in US managed care patients with RA who switched to a new biologic after previously initiating etanercept, adalimumab, infliximab, golimumab, or abatacept, for first-line treatment of moderate to severe RA. **METHODS:** Data were obtained from IMS PharMetrics Plus™, which comprises adjudicated medical and pharmaceutical claims for 150 million enrollees (40 million annually). An initial cohort included patients with RA aged 18-63, initiating biologic treatment 2007-2010, without diagnoses for other approved indications for these biologics, without any biologic use in the 6 months before initiation, and enrolled 12 months after initiation. The subset of patients who switched to a second biologic within 1 year of initiation (and before 3/21/2011) and were enrolled an additional year after switching, and had ≥100 patients were eligible for this analysis. The algorithm defined lack of effectiveness as: medication possession ratio (MPR) <80% (or fewer infusions than specified on US label), increase in biologic dose or frequency, switching biologics, adding new non-biologic Disease Modifying Anti-Rheumatic Drugs, initiation or increase of glucocorticoid dose, or >1 parenteral or intra-articular injection. **RESULTS:** Of 16,011 initial cohort patients, 1,243 met criteria for this analysis and switched to: etanercept (n=318), adalimumab (n=527), infliximab (n=202), and abatacept (n=196). Mean age at switch was 48.9 (SD 9.9), 80.2% were female. Post-switch biologics met algorithm critiera for "effective" in 22% of etanercept, 11% of infliximab, 21% of adalimumab, and 25% of abatacept patients. Cost per responder was $64,449 for etanercept, $226,167 for infliximab, $71,877 for adalimumab, and $87,563 for abatacept. **CONCLUSIONS:** Although abatacept was more effective second line than the other agents, the cost per responder was lower for etanercept and adalimumab.

PMS32

EFFECTIVENESS AND COST PER RESPONDER WITH FIRST-LINE BIOLOGICS FOR RHEUMATOID ARTHRITIS USING A VALIDATED, CLAIMS-BASED ALGORITHM IN A LARGE US COMMERCIAL HEALTH PLAN

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OBJECTIVES: A recently published claims-based algorithm to evaluate effectiveness of biologics for rheumatoid arthritis (RA) was validated using data from the Veteran Health Administration and VA RA registry. The objective was to compare 1-year cost per responder among biologics approved for first-line treatment of moderate to severe RA, etanercept, adalimumab, infliximab, golimumab, and abatacept among patients in a US health plan using this claims-based algorithm. **METHODS:** This retrospective cohort study used commercial claims data from the Optum Research Database, including medical and pharmacy claims for >13.3 million individuals. Adult patients with RA (ICD-9 714.0x) newly initiating biologic treatment between Jan 1, 2008 and Dec 1, 2010 followed by ≥12 months of continuous enrollment were included. Patients with other diagnoses for which these agents are approved were excluded. The algorithm classifies a drug as "non-effective" if any of the following criteria are met: low adherence MPR < 80% or receiving less than the expected number of infusions/injections; increase in biologic dose or frequency; switching biologics; adding new non-biologic Diseases Modifying Anti-Rheumatic Drugs; new glucocorticoid use or increase in glucocorticoid dose; and > 1 parenteral or intra-articular glucocorticoid injection. Drug costs were estimated using actual medication usage and administration costs. Non-responders were defined as patients in whom the drug was classified as "non-effective". **RESULTS:** A total of 5,474 patients (2,425 etanercept, 1,857 adalimumab, 773 infliximab, 295 abatacept, and 124 golimumab) were included. Across agents, between 76% and 85% were female, with a mean age of 48 years. The medications were classified "effective" (low disease activity or remission) in 32.7%, 27.7%, 19.0%, 30.2%, and 32.3% of patients respectively. Mean cost per responder was lowest for etanercept ($43,935), followed by golimumab ($49,589), adalimumab ($52,752), abatacept ($62,300), and infliximab ($101,402). **CONCLUSIONS:** Etanercept had the lowest cost per responder in RA using a new, validated claims based algorithm.

PMS33

COST-EFFECTIVENESS OF ABATACEPT FOR THE TREATMENT OF PATIENTS WITH RHEUMATOID ARTHRITIS AFTER AN INADEQUATE RESPONSE TO METHOTREXATE IN CHILE

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OBJECTIVES: To estimate the cost-effectiveness of abatacept in combination with methotrexate (MTX) versus rituximab or tocilizumab in combination with MTX, in patients with Rheumatoid Arthritis with inadequate response to methotrexate (IR-MTX) in Chile. **METHODS:** Adapting a previously validated model, dynamic simulation techniques and clinical data from published literature were used to compare the clinical events, quality of life, and direct medical costs of abatacept, rituximab and tocilizumab. Costs of drug acquisition, administration and monitoring were considered. Costs were expressed in US Dollars of 2012 (Exchange rate: $ 487.8 Chilean pesos=1 US Dollar). A 5-year time horizon for a cohort of 1000 patients and the payer's perspective were assumed. Costs and health outcomes were discounted at 6% annually. Univariate sensitivity analysis was performed to assess the robustness of the model results. **RESULTS:** A hypothetical cohort of 1,000 patients with RA and IR-MTX in Chile, followed for 5 years, resulted in mean drug costs of: US$40,792, US$21,952, and US$35,849, for abatacept, rituximab and tocilizumab, respectively. Total direct medical costs (discounted) per patient were US$47,533 (46,510-48,848) for abatacept, US$27,428 (27,017-27,914) for rituximab, and US$ 42,543 (41,545-44,428) for tocilizumab. The total QALYs gained (discounted) by abatacept, rituximab and tocilizumab during the same period were: 2.06 (2.01-2.10), 1.11 (1.07-1.16) and 1.93 (1.87-1.97) respectively. The calculated Incremental Cost-Effectiveness Ratio (ICER) for abatacept compared to rituximab and tocilizumab were US$21,117 (18,089-25,792) and US$37,614 (9,179-185,253) per QALY gained, respectively. Sensitivity analysis confirmed the robustness of the model findings. **CONCLUSIONS:** In Chile, according to the model inputs, abatacept showed better effectiveness in terms of QALYs than rituximab or tocilizumab, for patients with rheumatoid arthritis after an inadequate response to MTX. The results suggest that abatacept is cost-effective compared to rituximab (ICER ≤3 GDP per capita).

PMS34

ABATACEPT FOR THE TREATMENT OF PATIENTS WITH RHEUMATOID ARTHRITIS IN ARGENTINA: A COST-EFFECTIVENESS ANALYSIS

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OBJECTIVES: To estimate the cost-effectiveness of Abatacept in combination with methotrexate (MTX) versus infliximab or tocilizumab in combination with MTX, in patients with rheumatoid arthritis with inadequate response to methotrexate (IR-MTX) in Argentina. **METHODS:** Adapting a previously validated model, dynamic simulation techniques and clinical data from published literature were used to compare the clinical events, quality of life, and direct medical costs of abatacept, infliximab and tocilizumab. Costs of drug acquisition, administration and monitoring were considered. Costs were calculated from social security system of Argentina (Exchange rate: $4.41 Argentinean pesos=1 US Dollar). A 5-year time horizon was assumed. Costs and health outcomes were discounted at 3% annually. Univariate sensitivity analysis was performed to assess the robustness of the results of the model. **RESULTS:** A hypothetical cohort of 1,000 patients with RA and IR MTX in Argentina, followed for 5 years, resulted in mean drug costs of: US$70,427, US$80,930, and US$85,986, for abatacept, infliximab and tocilizumab, respectively. Total direct medical costs (discounted) per patient were US$78,458 (76,543-81,290) for abatacept, US$ 89,752 (87,705-95,250) for infliximab, and US$ 93,492 (90,916-98,903) for tocilizumab. The total QALYs gained (discounted) by abatacept, infliximab and tocilizumab during the same period were: 2.47 (2.41-2.50), 2.39 (2.34-2.43) and 2.39 (2.34-2.43) respectively. Using abatacept as the reference treatment, infliximab and tocilizumab provided less utility at a higher cost, being dominated by abatacept.